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Part III

Environmental Protection Agency

Pesticide Chemical Active Ingredients; Proposed Registration Standards Ranking Scheme

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Chapter I

[OPP 30040; FRL 1625-6]

Pesticide Chemical Active Ingredients; Proposed Registration Standards Ranking Scheme

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed registration standards ranking scheme.

SUMMARY: This informational notice is not a proposal that will result in rulemaking, but rather is an attempt to provide interested parties with an idea as to the fashion in which EPA will prioritize the various pesticide active ingredients under the Registration Standards Program. Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA is required to review the more than 38,000 pesticide products currently registered in order to determine whether they pose unreasonable effects on man or the environment. EPA announced in an advanced notice of proposed rulemaking entitled "Registration Standards for the Registration of Pesticides" that it would review these products based on their active ingredients, allowing many products with the same active ingredient to be registered under the same standard (44 FR 76311, published in the **Federal Register** of December 26, 1979).

This document discusses in detail EPA's proposed method to order the registration standards review of these active ingredients based on their production and exposure.

DATES: Written comments should be submitted on or before December 15, 1980.

ADDRESS: Written comments should be submitted to: Document Control Officer (TS-793), Office of Pesticides and Toxic Substances, Rm. E-447, Environmental Protection Agency, 401 M St, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: Ann Dizard or Emily White, Special Pesticide Review Division (TS-791), Office of Pesticide Programs, Rm. 1002-B, Crystal Mall #2, Environmental Protection Agency, 401 M St. SW, Washington, D.C., (703-557-1127).

SUPPLEMENTARY INFORMATION: This document sets out EPA's proposal to group the more than 600 active ingredients into "clusters" according to similarity of major uses (e.g., herbicides, insecticides, fungicides, disinfectants) and in cases when clusters are very large, to disaggregate them further according to the sites on which they are applied. Once the chemicals are assigned to clusters, a ranking equation, based on chemical production and exposure, will be used to assign point values to clusters. Clusters with high point values (i.e., high exposure and production) will be ranked high priority and will be reviewed ahead of lower-ranked clusters; however, EPA reserves the right to bypass the ranking order for single chemicals or entire clusters when such action seems appropriate based on new data, public concern, or other circumstances. EPA simultaneously will develop standards for each chemical included in the clusters; thus standards for alternative chemicals will be consistent and available within the approximate same time frame. During the development of the standards, data on the risks and uses of alternative chemicals will be collected which will facilitate subsequent, more detailed reviews if a chemical poses a substantial risk to humans and the environment. EPA feels that this approach will fulfill its Congressional mandate to review and reregister pesticides in an efficient, responsible way. A second **Federal Register** notice describing the ranking results will be prepared at a later date.

I. Introduction to the Registration Standards Ranking Scheme

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA is responsible for registering all new pesticide products and reviewing the acceptability of each of the 38,000 currently registered pesticide products, imposing restrictions on these products when necessary to protect human health and the environment. This authority has been described in detail in the advance notice of proposed rulemaking entitled "Registration Standards for the Registration of Pesticides" published in the **Federal Register** of December 26, 1979 (44 FR 76311). The reader should consult this notice for specific details of EPA's review and reregistration process.

Of particular relevance to this **Federal Register** document is EPA's approach to the review and reregistration of the 38,000 currently registered pesticide products. EPA has proposed to organize, review, and reregister these products according to their generic chemical ingredients. EPA intends to develop a document called a "registration standard" which states the agency's regulatory position with respect to a group of pesticide products containing the same active ingredient. This approach greatly reduces the number of items requiring detailed review; approximately 600 generic chemicals have been identified to date.

Even though this approach greatly reduces the number of items requiring review, EPA still must address the problem of how to order the chemicals for review. EPA has estimated that it could take 10 to 15 years to process all Registration Standard chemicals. Thus, some scheme to order the review of these chemicals must be developed.

II. The Cluster Concept

A. Definition

EPA has responded to the problem of ordering chemicals for review by developing the cluster concept of ranking. Under this scheme, EPA has grouped the approximately 600 generic chemicals into 48 clusters.

A cluster is a group of chemicals and a group of sites that are closely correlated, e.g., 10 insecticides used on citrus and grapes. Chemicals were first divided into major classes according to use, such as insecticides, herbicides, growth regulators, preservatives, and others. Some classes, such as the growth regulators and preservatives, contained a small number of chemicals which were assigned to these groups based on documentation in common published sources. The chemicals in each of the three classes of insecticides, herbicides, and fungicides, however, were too numerous to be contained in one cluster; therefore EPA used pesticide use data to break them down into smaller groups. Chemicals and sites were assigned to the same cluster when both of the following criteria were met:

1. More of each chemical in the cluster is used on one or more of the sites identified in the cluster than on any other cluster of sites, and

2. Each site in the cluster is treated with more of one or more of the chemicals within the cluster than with chemicals in any other cluster. The number of chemicals within each cluster group ranges between one and 26, with most clusters limited to less than 20. This limitation was necessary to preserve the aim of clustering, which is to provide for the review and reregistration of major chemical alternatives in the same approximate time frame.

B. Advantages to the Cluster Approach

The cluster approach presents three main advantages:

1. *Equity to the registrant.* Chemicals within the same cluster would be reviewed at about the same time. Thus no single registrant would have a commercial advantage over registrants

of pesticides used to treat similar problems.

2. *Advantages to user.* Labels of all products containing the chemicals in the clusters would be revised and made consistent at about the same time. In addition, due to the grouping of chemicals in clusters, alternative treatments for a common pest problem would receive simultaneous review. Users would have maximum flexibility to choose the pesticide best suited for their needs.

3. *Expeditious reregistration system.* EPA's proposed approach allows review to proceed on a variety of similar use compounds within a common time frame. Data on alternatives will be available at the same time; if one or more of the chemicals hits a Rebuttable Presumption Against Registration (RPAR) trigger, the RPAR review will be expedited by enabling risk data on alternative chemicals to be compared to see whether lower risk compounds can be substituted for the high risk one undergoing RPAR.

C. Detailed Discussion of the Cluster Concept

1. *Methodology.* As stated earlier, pesticide use data were employed to break down the three large classes of insecticides, herbicides, and fungicides into smaller groups that could be reviewed more easily. Chemicals and sites were assigned to the same cluster when the usage data showed that: (1) more of the chemicals were used to treat the sites in the cluster and (2) the sites were treated most often by those chemicals. For example, a cluster might originally include only grapes as a site. Initially, chemicals most heavily used to treat grapes would be assigned to that cluster. In the second iteration, citrus and grapes might both be heavy users of the same chemical, and so the cluster would be expanded to include both sites. In subsequent iterations, large clusters, such as corn (which is treated by many chemicals), tended to bring in other site/applications; therefore EPA had to limit the number of iterations when the clusters were becoming too large. This limitation was necessary to preserve the aim of the cluster concept, which is to create small groups of alternative chemicals used to treat similar sites, thus allowing simultaneous review of these chemicals.

2. *Limitations of the analysis.* EPA had to strike a balance between cluster error, defined as out of cluster use, and cluster size. Thus, if corn, citrus, and grapes all were treated by one of the same chemicals, but at the same time also were treated with other chemicals more specifically tailored to pest problems at the individual sites, EPA had to choose between assigning the chemical to only one of the sites on which it was used, or consolidating clusters. In some instances EPA consolidated clusters, but when it seemed appropriate to maintain the divisions of certain clusters, EPA would assign the chemical to the cluster of sites on which it was most heavily used.

The accuracy of this approach is reflected in the following examples. Insecticide use within cluster groups varied from 50 to 87 percent, i.e., individual chemicals within the clusters represented from 50 to 87 percent of the chemicals used to treat those sites. On a weighted average basis, the chemicals grouped with the sites represented 82.5 percent of the chemicals actually used. The overall error rate for the broad category of insecticides, then, is indicated by the remaining 17.5 percent, which represents the percentage of chemicals used at the sites, but which are not included in the cluster.

Similarly, the average error rate for herbicides is 14.6 percent. An error rate for the fungicides could not be determined because the usage data were not in an accessible format. Error rates for other groupings are not applicable, since uses were determined from common published sources rather than by a quantified analysis of use data.

The main result of these error rates is that in some cases a cluster will not include the major chemicals used on the sites listed. For example, this problem occurred with Cluster H–2, Corn, and Cluster H–4, Sorghum, Rice, and Small Grains. A major chemical was used most often to treat problems in both clusters; however, it was used most heavily on corn and was therefore assigned to that cluster. As a result, chemicals listed in Cluster H–4 represented the minor chemicals used to treat that cluster. Alternatively, Cluster H–4 could have been included in Cluster H–2, but as stated earlier, this would have made the cluster for corn too large and would have defied the purpose of clustering, which is to group chemicals in a way that allows for judicious and expeditious review. In addition, it should be noted that all uses of a chemical undergoing review will be considered, not just the use related to the cluster in which the chemical is grouped. Consideration of all uses for a chemical at one time will greatly alleviate any problems raised by incorrect clustering. For the most part, chemicals and sites were closely correlated and the major alternative chemicals are included in the same cluster.

3. *Review of cluster groupings.* Once chemicals were assigned to clusters, either by computer analysis or literature review, the logic of the groupings was reviewed by scientists within EPA.

4. *Resulting clusters.* As a result of EPA's effort, more than 600 chemicals have been grouped into 48 clusters. A chemical is placed in the most appropriate cluster, even if it is used to treat several other sites. However, in a few, limited circumstances, a chemical may be used substantially to treat many sites. Chemicals falling in this category and having similar uses are grouped in a cluster with across the board sites (e.g., Cluster F–1 of the fungicides, which includes the EBDC's, benomyl, captan, copper compounds, thiram, and chlorothalonil). Under IV of this notice is a list of the chemicals contained in each of the 48 clusters. EPA invites comments on the assignment of chemicals into clusters, particularly if the placement of a chemical seems inappropriate.

5. *Review schedule for clusters.* In order to determine the review schedule for clusters, EPA has developed an equation, based on pesticide production and exposure, to assign point values to each cluster. The equation and, particularly, the rationale for including production and exposure as the major determinants of priority, are discussed in detail in III of this notice.

III. The Ranking Equation

A. Selection of the Equation

EPA has developed the following equation to assign point values to chemicals within each cluster:

$X=(2E_1+E_2)(P)$
P=Production
E_1=Human Exposure
E_2=Fish and Wildlife Exposure

Human and fish and wildlife exposure were computed as a summation of the various elements which comprise the exposure estimate (see the following pages for an explicit breakdown of each item and range of point values).

A factor for risk originally was included in the ranking equation; however, several problems arose that precluded its inclusion in the final equation. The primary reason was that detailed data on the toxicity of most chemicals were not available. In addition, during preliminary runs of the equation, EPA found that the inclusion or exclusion of risk did not affect the overall results of the equation, primarily because exposure was weighted heavily. The fish and wildlife portion of the equation, however, does include a factor for toxicity because such information was readily available for most

chemicals. Human exposure is multiplied by two because of the greater risk involved with direct hazards to human health rather than indirect hazards to human health resulting from fish and wildlife exposure. Therefore, direct human exposure should receive greater emphasis in determining the order in which to review chemicals. EPA will maintain a certain amount of flexibility once the equation is adopted and reserves the right to bypass the ranking order for chemicals in cases when new data reveal hazards formerly unknown, public concern for a chemical warrants attention, or other situations when EPA determines it appropriate to review a chemical or an entire cluster ahead of its scheduled review time.

B. Detailed Discussion of Point Values in the Equation

The following paragraphs discuss the way production and exposure values (both human and fish and wildlife) were determined for each chemical.

1. *Production.* Chemicals are ranked high, medium, or low according to how many pounds of active ingredient are produced on an annual basis. 20 percent of the pesticide active ingredients fall into the high priority category, 40 percent in medium and 40 percent in low.

Ranking

>1 million lbs/year=high=5
25,000 to 1 million lbs/year=medium=3
<25,000 lbs/year=low=1

2. *Human exposure* (E_1). For each chemical, overall point values for human exposure were derived from the food uses of the chemical, product formulation, reentry potential, bystanders potentially affected, home uses, agricultural uses, and human residue/environmental contamination. Each of these parameters is discussed below.

a. *Food uses.* Food use chemicals were ranked according to the percent of acceptable daily intake (ADI) which had been met or, when that information was unavailable, the number of tolerances. Numerical values were assigned as follows:

Ranking

81%—100% ADI=4
41%—80% ADI=2
0.1%—40% ADI=1
<0.1% ADI=0
or
>20 tolerances=4
11 to 20 tolerances=2
1 to 10 tolerances=1
No tolerances=0

b. *Applications.* Exposure will be affected by the form of application of a chemical, e.g., a dust or aerosol formulation will result in higher exposure than a granular or closed system formulation. Point values are:

Ranking

Liquid, dust, aerosol, gas=4
Granular=2
Limited Application [1]=0

c. *Reentry.* People may be exposed to a chemical after it has been applied, e.g., workers harvesting a chemically treated crop may inhale or have physical contact with the chemical residue on the crop.

This parameter considers reentry only from phosphate or carbamate chemicals used on fruits or vegetables or other uses because of the likelihood that the chemicals would be sufficiently persistent to result in exposure to harvesters. In addition, these chemicals are most acutely toxic because of cholinesterase inhibition and reentry exposure likely would occur because fruits and vegetables are often picked manually.

The following values were assigned:

Ranking

Phosphate or carbamate used on fruits or vegetables=4
Phosphate or carbamate only=2
Other categories=0

d. *Bystanders.* This category assigns point values for non-target human exposure in outdoor chemical applications:

Ranking

Aerial sprays=4
Other outdoor applications=2
Virtually no non-target exposure=0

e. *Home uses.* This category assigns values to exposure resulting from home/closed working space uses of a chemical:

Ranking

Aerosol, dust, or spray=4
Weed & feed, flea collars, other low concentration products=2
Enclosed traps, etc.=1
No home uses=0

f. *All agricultural uses (to account for mixing, loading, and cleaning).* This category was included to account for incidental agricultural exposure occurring when people mix, load, or clean with pesticide chemicals for both crop and non-crop farm use. It also helps implement section 3(g) of the Act which requires that special consideration be given to pesticides that result in post-harvest residues in or on food or feed crops.

Ranking

Any agricultural uses=2
No agricultural uses=0

g. *Human data.* Chemicals which are persistent in human tissue or in air, soil, and water, present a higher level of exposure opportunity. In cases where data are known to exist, point values were assigned as follows:

Ranking

Residue found in humans=10
Known environmental contamination=5
No residues found in humans=0

3. *Fish and wildlife exposure* (E_2). Fish and wildlife exposure was measured by the toxicity of a given chemical and the extent to which exposure might occur. The information on toxicity was taken from the pesticide labels. Other parameters included were: application site data, cultural practices, frequency of application, application rate (lbs/acre), and method of application. Each of these criteria is discussed below.

a. *Toxicity.* Toxicity to mammals, birds, fish and aquatic invertebrates was determined by information on individual pesticide labels as follows:

(1) Mammals:

Ranking

Symbol of Skull & Crossbone appears on the label=3
Word "Danger" "Warning" or "Caution" appears on the label=1
The above symbol or words do not appear on the label=0

(2) Birds:

Ranking

Bird warning appears on label=3
No bird warning on label=0

(3) Fish:

Ranking

Fish warning appears on label=3
No fish warning on label=0

(4) Aquatic Invertebrates:

Ranking

Aquatic invertebrate (shrimp, crabs, oysters) warning appears on label=3
No aquatic inverterbrate warning on label=0

b. *Site of application.* Three factors were used to determine exposure resulting from different site/application characteristics: (1) cropland as percentage of total land resource, (2) average potential annual direct runoff, and (3) cultural practices. Factors one and two represent situations in which a chemical is used on a large portion of land and/or heavy precipitation occurs in that area, thus increasing the potential for fish and wildlife exposure. Factor three reflects exposure differences in field crops (rotational) versus nonrotational crops, e.g., orchards.

[1] Limited application refers to those methods which would result in little or no exposure to applicators. Examples of such applications include fumigation, Japanese beetle traps, roach traps, and fly paper.

(1) Cropland as percentage of total land resource area.[2]

Ranking

76—100% = 2.0
51—75% = 1.5
26—50% = 1.0
0.1—25% = 0.5
0% = 0

(2) Average potential annual direct runoff:[2]

Ranking

>7" = 2.0
3.1 to 7" = 1.5
1.1 to 3" = 1.0
0.1 to 1" = 0.5
0" = 0

(3) Cultural practices:

Ranking

Rotational annual crops = 1
Nonrotational (perennial) crops only = 2
No crops use = 0

c. *Frequency of application.* This parameter ranks chemicals on how frequently they are applied to the site:

Ranking

High application rate (5 or more times/year) = 4
Medium application rate (2 to 4 times/year) = 3
Low application rate (one time/year or less) = 2
No outdoor application = 0

d. *Application volume.* This parameter ranks chemicals on amount of active ingredient applied:

Ranking

High (>5 lb/acre) = 4
Medium (1–5 lb/acre) = 3
Low (<1 lb/acre) = 2
No outdoor application = 0

e. *Method of application.* This parameter assigns point values for the likelihood that non-target species will be affected by the application of the chemical:

Ranking

Aerial spray (including thermal fogging) = 3
Other outdoor applications = 2
No outdoor applications = 0

C. Use of Point Values

Based on the equation described in III. A., point values will be assigned to each chemical within a cluster. For each cluster, these values will be summed and then divided by the number of chemicals in the cluster to produce an average. Clusters with the highest average will be reviewed ahead of clusters with lower averages, and standards for each of the generic chemicals within these clusters will be developed. The final assignment of chemicals to clusters will follow receipt of comments to this notice. To be considered, comments should be received within 30 days of publication of this notice. Once chemical assignments to clusters are finalized, the final ranking of clusters will be made and a second notice describing the ranking will be published.

[2] This information was taken from maps showing average annual potential direct runoff and croplands as percentages of total land resource areas appearing in B.A. Steward, Woolhiser, D.A., Wischmeier, W.H., Caro, J.H., and Frere, M.H., "Control of Water Pollution Runoff from Cropland," Vol. 1, November 1975. EPA–600/2–75–026a.

IV. List of Clusters

The master listing of chemicals indicating the placement of individual chemicals in the 48 clusters, and itemized listing of each cluster follows:

Master Chemical List

Chemical Name and Group

Abietylamine, R–11
Acephate (orthene), I–1
Acetic Acid, R–6
Acifluorfen, H–3
Acrolein, H–7
Alachlor, H–2
Aldicarb (Temik), I–1
Aldrin, I–10
Aliquat 21, R–4
Alklyl Bis (Hydroxyethyl) Methyl Ammonium Chloride, R–8
Alkyl Bis (2-Hydroxyethyl) Sodium Ammonium Acetate, R–4
Alkyl (5-Hydroxy-4 Oxo-2 (4H) Pyranyl Methyl) Dimethyl Ammonium Chloride, R–8
Alkyl Monoethanol Amide, R–8
Allethrin, I–8
Allyl Alcohol F–10
Allyl isothiocyanate (mustard oil), R–14
Aluminum Chloride R–11
Aluminum Hydroxy Benzene Sulfonate, R–4
Aluminum Phosphide (phostoxin), I–9
Aluminum Powder, R–8
Aluminum Sulfate, R–9
Ametryn, H–5
Amical, R–1
Aminocarb (matacil), I–11
4-Aminopyridine (Avitrol), R–13
Amitraz (BAAM), I–3
Amitrol, H–7
Ammonium Arsenite, R–7
Ammonium Fluosilicate (Dri-Die), I–8
Ammonium Polysulfide, F–2
Ammonium Sulfamate (AMS), H–7
Amyl Acetate (banana oil), R–14
Ancymidol, R–10
Anethole (anise camphor), R–14
Anilazine, F–3
Antu, R–15
Arbanol Dee, R–5
Arsenic Acid, R–10
Arsenic Pentoxide, R–7
Aspon (o,o,o,o-tetrapropyl dithiopyrophosphate), I–11
Asulam, H–5
Atrazine, H–2
Azinphos-methyl (Guthion), I–3
Bacillus Popillae and B-lentimarbus, I–11
Bacillus thuringiensis, I–5
Barban, H–4
Baygon (Propoxur), I–8
Bayluscide, R–12
Bendiocarb (Ficam), I–8
Benefin, H–8
Benomyl, F–1
Bensulide, H–8
Bentazon, H–3
Benzaldehyde, I–7
Benzalkonium Chlorine, R–1
Benzene, I–6
Benzoic Acid, R–6
Benzyl Benzoate, I–6
O-Benzyl-p-chlorophenol, R–8
Bifenox, H–3
Bioallethrin (D-Trans allethrine), I–8
Bioban 1487, R–3
Biobor, R–1
Biomet 4, R–1
Biomet—12 (tri-n-butytin chloride), R–15
Biomet 204, R–8
Biphenyl, F–4
Bis (trichloromethyl) sulfone, R–2
1,4-Bis (Bromoacetoxy) -2-Butene, R–2
2,6-Bis (dimethylamino) methyl cyclohexanone, R–2
Bisethylxanthogen, H–9
Bitrex (Benzyl diethyl 2,6 xylylcarbamoylmethyl Ammonium benzoate), R–14
Blood, R–14
Bomyl, I–6
Bone oil (Dippel's oil), I–6
Boric Acid, I–8
Bromacil, H–5
4-Bromoacetoxymethyl-M-Dioxolane, R–2
Bromophos (nexion), I–11
Bromoxynil, H–4
BTC–E–2125, R–4
Bufencarb (Bux), I–2
Busan 40, R–2
Busan 77, R–2
Busan 90, R–2
Butachlor (Machete), H–4
Butanoic Anhydride, R–4
Butonate, I–6
Butoxy Polypropylene glycon (Stabilene) (Crag Fly Repellent), I–6
Butralin, H–8
Butylate, H–2 3
Cacodylic Acid, R–10
Cadmium Compounds, F–9
Calcium Arsenate, R–7
Calcium Cyanamide, F–3
Calcium Cyanide (cyonogas), I–9
Calcium Hypochlorite, R–8
Calcium Sulfate, R–5
Camphor, I–7
Capsaicin, R–14
Captafol, F–3
Captan, F–1
Carbaryl (Sevin), I–2
Carbofuran (Furadan), I–2
Carbon disulfide, I–9
Carbon Tetrachloride, I–9
Carbonates: Mg, K, Am, Na, R–4
Carbophenothion (Trithion), I–2
Carboxin, F–5
Castor oil, R–13
CDAA, H–9
CDEC, H–9
Cetyl Pyridinium Bromide, R–1
Chloramben (Amiben), H–3
Chlordane, I–10
Chlordimeform (Galecron, Fundal), I–1
Chlordimeform hydrochloride (Galecron SP, Fundal SP), I–1
Chlorfenethol (Dimite, Qikron), I–11

Chlorfenvinphos (Supona), I–6
Chlorflurenol (Maintain), R–10
Chlorhexidine, R–8
Chlorinated glycoluril, R–9
Chlorinated isocyanurates, R–9
Chlorinated levulinic Acids, R–2
Chlorine-B, R–8
Chlorine Dioxide, R–9
Chlorobenzene, R–11
Chlorobenzilate (Acaraben), I–4
Chlorobromuron, H–3
Chloroform, I–9
Chloroneb, F–15
Chloronitropropane, F–5
Chlorophacinone (Rozol), R–15
2-Chlorophenol, R–1
2-(3-Chlorophenoxy) Propanoic Acid, R–10
Chloropicrin, I–9
Chloropropylate (Acaralate), I–3
Chlorothalonil, F–1
Chlorothene (1,1,1-Trichloroethane), R–5
Chloroxuron, H–7
Chlorpropham (CIPC), H–9
Chlorpyrifos (Lorsban, Dursban), I–2
Chromic Acid, R–11
Citral, R–14
Citronella, oil of, I–7
Citrus oil, R–14
Coal Tar Oils, R–7
Cobalt Naphthenate, R–7
Copper Acetoarsenite (Paris Green), I–12
Copper Compounds, F–1
Copper Oxalate, R–13
Coumaphos (Co-Ral), I–6
Creosote, R–7
Cresylic Acid, R–14
Crotoxyphos (Ciodrin), I–6
Crufomate (Ruelene), I–6
Cryolite (Kryocide), I–4
Cyanazine (Ethiolate), H–2
Cycloate, H–6
Cycloheximide, F–9
Cyhexatin (plictran), I–3
Cyprazine, H–2
2,4-D (plus salts and esters), H–1
Dalapon, H–6
Daminozide, R–10
Dazomet, H–8
2,4-DB, H–3
DCNA, F–3
DCPA (Dacthal), H–9
DDT, I–13
DEET, I–7
DEF, R–10
Demeton (Systox), I–1
Desmediphen, H–6
Dialifor (Torak), I–3
Dialkyf Methyl Benzyl Ammonium Chloride, R–9
Diallate, H–6
Diamidfos, I–13
Diazinon (Spectracide), I–3
Dibromochloropropane (DBCP), I–9
2,3-Dibromopropionaldehyde, R–2
4,5-Dibromosalicylanicide, R–4
3,5-Dibromosalicylanilide, R–4
Dicamba, H–2
Dichlobenil, H–5
Dichlofenthion (Mobilawn), I–11
Dichlofop Methyl, H–3
Dichlone, F–3
Dichloroethyl Ether, F–8
Dichlorophene, R–1
Dichloropropane, I–9
Dichlorprop, H–7
Dichlorvos (DDVP), I–6
Dicofol (Kelthane), I–4
Dicrotophos (Bidrin), I–1
Dieldrin, I–10
Diethanolamide, R–14
Difenzoquat, H–4
Diflubenzuron (Dimilin), I–1
Diisobutyl Phenoxyethanol (Flys-off), I–6
Dimethoate (Cygon, Defend), I–4
Dimethoxane, R–1
Dimethrin, I–12
Dimethyl Phthalate (DMP), I–6
Dimetilan (Snip), I–13
Dinitramine, H–3
Dinocap (Karathane), I–3
Dinoseb, H–6
Dioxathion (Delnav), I–4
Diphacinone (Diphacin), R–15
Diphacinone, Sodium Salt, R–15
Diphenamid, H–9
Diphenylamine (DPA), I–6
Dipropetryn, H–4
Diquat, H–7
Disparlure, I–11
Disulfoton (Di-Syston), I–2
Ditalimfos, F–10
Dithianon, F–2
2,2-Dithiobisbenzothiazole, F–2
Diuron, H–5
Dodecyl Dimethyl Benzyl Ammonium Chloride, R–1
Dodine, F–2
Dormant oils, I–3
Dowicides, R–11
Dowicil A–40, R–11
DPX 1108, R–10
DSMA, H–3
EBDC's (6), F–1
EDTA, R–4
EGT, H–3
Endosulfan (thiodan), I–3
Endothall, H–9
Endrin, I–1
EPIC liquid algacide, R–9
Epichlorohydrin, I–9
EPN, I–1
Epsom salts, R–12
EPTC, H–2
Erbon, H–10
Ethephon, R–10
Ethion (Nialate), I–4
Ethofumesate, H–6
Ethoprop (Mocap), I–2
Ethoxyquin, R–10
Ethyl Formate, I–9
Ethyl hexanediol (Rutgers 612), I–7
Ethylene, R–10
Ethylene dibromide (EDB), I–9
Ethylene Dichloride (EDC), I–9
Ethylene glycol ether of pinene (DHS activator), I–8
Ethylene Oxide (ETO), I–9
Ethylenediamine, R–8
Eucalyptus, R–14
Eugenol, I–11
Famphur (Famophos), I–6
Fatty Alcohols, R–10
Fenac, H–7
Fenaminosulf, F–5
Fenamiphos, I–9
Fenchlorphos (Ronnel), I–6
Fenitrothion (Sumithion), I–11
Fensulfothion (Dasanit), I–2
Fenthion (Baytex), I–12
Fentin hydroxide, F–2
Fenvalerate (Pydrin), I–1
Ferbam, F–2
Ferrous Sulfate heptahydrate, H–8
Fluchloralin, H–3
Fluometuron, H–3
Fluoroacetamide (Fluorakil 100), R–15
Fluorosalan, R–1
Folpet, F–2
Fonofos (Dyfonate), I–2
Formaldehyde, R–8
Formetanate hydrochloride (carzol SP), I–4
Fosamine, H–7
Fumaric Acid, R–8
Fumarin (Coumafuryl), R–15
Furfural, R–8
Geranium Oil, R–14
Gibberellic Acid, R–10
Gluconic Acid, R–8
Glutaraldehyde, R–8
Glycolic Acid, R–8
Glyodin, F–2
Glyphosate isopropylamine salt, H–3
Gophacide (Phosacetin), R–15
Gossyplure, I–1
Grandlure Mixture, I–1
Groton, R–3
Gypchek, I–11
Halazone, R–9
HCl, R–4
Heliothis Polyhedrosis (virus elcar), I–1
Heptachlor, I–10
HEX, I–1
Hexachloroacetone, R–10
Hexachlorobenzene, F–5
Hexachlorophene, F–3
Hexahydro–1,3,5-Tris (2-Hydroxypropyl)-S-Triazine, R–8
Hexazinone, H–5
Hexylene glycol, R–11
Hyamine 3500, R–4
Hydrogen cyanide (cyclon), I–9
Indalone, I–7
Indole 3-Butyric Acid, R–10
Iodine Compounds, R–8
Iprodione, F–9
Isobutyric Acid, F–7
Isooctyl Phenoxy Polythoxy Ethanol, R–8
Isopropalin, H–9
Isothan, F–6
Isothymyl Chloroethyl ether, I–8
2-Isovaleryl 1,3 Indandione, Calcium Salt, R–15
Karathane, F–2
Karbutilate, H–7
Kathon 886, R–1
Kerosene, I–12
Kinoprene (Enstar), I–11
Lamprecide, R–12
Landrin I–2
Lavender oil R–14
Lead Arsenate, Acid, I–13
Lead Arsenate, basic, I–13
Lemongrass oil, R–14
Lethane 384, I–8
Lethane 60+Lethane A–70, I–8
Lime, R–11
Lindane, I–6
Linseed oil, I–6
Linuron, H–3
Magnesium Chloride, R–8
Malathion, I–5
Maleic Hydrazide, R–10
MAMA, H–7
MCPA, H–4
MCPB, H–6
Mecoprop, H–8
Menthol, R–14
Mercaptobenzothiazole, R–1

Merphos, R–10
Metabromuron, H–9
Metaldehyde, R–12
Metam-Sodium, I–9
Metasol J–26, R–2
Methamidophos (Monitor), I–5
Methazole, H–4
Methidathion (Supracide), I–2
Methiocarb (Mesurol), R–12
Methomyl (lannate, Nudrin), I–1
Methoprene (Altosid), I–12
Methoxychlor, I–5
Methyl bromide, I–9
Methyl-2-3-Dibromopropionate, R–2
Methyl Esters of fatty acids, R–10
Methyl Eugenol, I–11
Methyl Nonyl Ketone, R–14
Methyl Parathion, I–1
Methyl P-Hydroxybenzoate, R–6
Methyl Salicylate (Wintergreen), R–4
Methyl Trithion, I–13
Methylene Bis (thiocyanate), R–1
Methylene Chloride, I–9
Metolachlor, H–2
Metribuzin, H–3
Mevinphos (Phosdrin), I–5
Mexacarbate (zectran), I–11
MG Silicate, R–4
MGK 264, I–8
MGK Repellent eleven, I–7
MGK Repellent 326, I–7
MGK Repellent 874, I–8
Mitin FF, I–8
Mobam, I–13
Molinate, H–4
Monocrotophos (Azodrin), I–1
Monohydrate, R–1
Monuron, H–7
Morpholine, R–8
MSMA, H–7
Muscalure, I–6
NAA, R–10
NAAM, R–10
Nabam, R–2
Naled (Dibrom), I–4
N-Alkyl-N-Ethyl Morpholinium Ethyl Sulfate, R–8
2-Naphthol Beta-Naphthol, I–3
Napropamide, H–5
Naptalam (Alanap), H–3
Naphthalene, I–8
Neburon, H–10
Neomycin, R–4
Nickel Sulfate, F–9
Nicotine, I–5
Nicotine Sulfate, I–5
Nitralin, H–3
Nitrapyrin, R–11
Nitrofen, H–9
N-Laurel Diethylenetriamme, R–4
NMPD, R–3
Norea (Herbam), H–9
Norflurazon, H–4
N-Propyl Isome, R–5
Nuclear polyhedrosis virus of Douglas fir tussock moth, I–11
Nvosept 95, R–1
Omadine Sodium, R–11
Onyxide, R–1
Ornitrol, R–13
Ortho-dichlorobenzene, I–13
Oryzalin, H–3
Ovex (Chlorfenson), I–3
Oxadiazon, H–4
Oxamyl (vydate L), I–5
10, 10 Oxybisphenoxarsine, R–1
Oxydemeton-methyl (metasystox-R), I–5
Oxyfluorfen (Goal), H–3
Oxythioquinox, F–2
Paloja, R–13
Para-dichlorobenzene, I–8
Paraquat, H–5
Parathion, I–1
Parinol, F–8
P-Chlorophenoxyacetic Acid, R–10
Pebulate, H–6
Pendimethalin, H–3
Pentac (Dienochlor), I–11
Pentachloronitrobenzene-(PCNB), F–5
Pentachlorophenol, R–7
Pentanethiol, R–14
Pentasodium diethylenetriamine pentaacetate, R–5
Perchloroethylene, I–9
Perfluidone, H–3
Permethrin (Ambush, Pounce), I–1
Phenmedipham, H–6
Phenol, R–4
Phenothiazine, I–6
Phorate (thimet), I–2
Phosalone (Zolone), I–3
Phosmet (Imidan, Prolate), I–3
Phosphamidon (Dimecron), I–1
Phosphorus, R–15
Phyomone, R–10
Picloram, H–4
Pine Tar, I–13
Piperalin, F–8
Piperazine dihydrochloride, I–6
Piperonyl butoxide, R–5
Pirimicarb (pirimor), I–5
Pirimiphos-ethyl (primicid), I–5
Pival (Pivalyn), R–15
PMP (Valone) , R–15
Polybutene, R–13
Polychlorobicyclopentadiene, H–8
Polyethylene, R–13
Polyethylene Polyamine N-Oleylamine Hydrochloride, R–3
Polyisobutylene, R–13
Potassium Bifluoride, R–7
Potassium Bisulfate, R–2
Potassium Bromide, R–4
Potassium Chromate, R–2
Potassium Cyanate, H–8
Potassium Iodate, R–11
Potassium Permanganate, R–11
Profenofos (Curacron), I–1
Profluralin, H–3
Prolin (Warfarin + Sulfaquinoxaline), R–15
Prometon (Pramito)l, H–10
Prometryn, H–10
Pronamide, H–3
Propachlor, H–3
Propazine, H–4
Propham, H–6
Propanil, H–4
Propargite (Omite), I–3
Propionic Acid, F–7
Propylene Oxide, I–9
Propylene Glycol, R–8
Proxel, R–6
Pyrazon, H–6
Pyrethrins, I–8
Pyridine, R–14
Quinone (1,4 benzoquinone), R–13
R–55 (tert-butyl dimethyltrithioperoxycarbamate), R–15
Red Squill, R–15
Resmethrin, I–8
Rotenone, I–5
Ryanodine (Ryania), I–5
Sabidilla, I–5
Saltpeter, I–13
Sec-butylamine, F–4
Sesame Oil, R–5
Siduron, H–8
Silica gel, I–8
Silicon Dioxide, I–8
Silver, R–9
Silvex, H–7
Simazine, H–2
Slimitrole, R–2
Soap, I–13
Sodium Acetate, R–11
Sodium and potassium hydroxide, R–4
Sodium Arsenate, I–13
Sodium Arsenite, R–7
Sodium Bisulfate, R–4
Sodium Bisulfite, R–4
Sodium Bromide, R–9
Sodium Chloride, R–11
Sodium Chromate, R–2
Sodium Cyanide, R–15
Sodium Dehydroacetate, F–6
Sodium Diacetate, R–6
Sodium Fluoride, I–8
Sodium Fluoroacetate, R–15
Sodium Fluosilicate, I–8
Sodium Hypochlorite, F–6
Sodium Lauryl Sulfate, R–4
Sodium N-Methyl-N-Oleoyltaurate, R–1
Sodium Pentachlorophenate, I–13
Sodium Persulfate, R–9
Sodium Phosphates, R–11
Sodium Polysulfide, F–2
Sodium Pyroarsenate, R–7
Sodium Sulfate, R–4
Sodium TCA, H–6
Sodium Thiosulfate, F–2
Sorbic Acid, F–10
Starlicide, R–13
Streptomycin, F–2
Strychnine, R–15
Strychnine Sulfate, R–15
Sulfonated Cresol, R–2
Sulfonated Vegetable oil, R–5
Sulfotepp, I–9
Sulfoxide, R–5
Sulfur, F–2
Sulfuric Acid, R–10
Sulfuryl Fluoride (Vikane), I–10
Sulprofos (Bolstar), I–1
Sumithrin (d-phenothrin), I–8
Summer oil, I–4
2,4,5-T, H–7
Tabutrex, I–6
Talon (brodifacoum), R–15
Tar, R–7
TCBC, H–2
TCC, R–4
Tebuthiuron, H–7
Temephos (Abate), I–12
TEPP, I–2
Terbacil, H–5
Terbufos (Counter), I–2
Terbutol, H–8
Terbutryn, H–4
Terrazole, F–5
4-Tert-Amylphenol, R–8
Tetrachlorvinphos (Gardona, Rabon), I–6
Tetradifon (Tedion), I–4
Tetramethrin (Neo-Pyanamin), I–8
Tetrasul (Animert), I–3
TFM, R–12
Thanite (isobornyl thiocyanoacetate), I–8
Thiabendazole, F–4
Thidiazuron (Dropp), R–10

Thiophanates, F–9
Thiram, F–1
Thymol, R–14
TIBA, R–10
Toxaphene, I–1
Trans-1,2,bis (Propylsulfonyl) ethylene, F–5
Triallate, H–4
Triadimefon (Bayleton), F–3
3,4,5-Tribromosalicylanilide, R–8
Tributyltin Chloride, R–6
Trichlopyr, H–7
Trichlorfon (Dylox), I–2
Trichloroethylene, R–14
2,4,5 Trichlorophenol, R–1
2,4,6 Trichlorophenol, R–2
Tridemorph (Calixin), F–7
Triethanolamine salt of lauryl sulfate, R–14
Trifluralin, H–3
Triforine, F–8
Trisodium Nitrilotriacetate, R–4
Trisodium Phosphate, R–8
Tropital, R–5
Vendex (Hexakis), I–3
Vernolate, H–3
Vinyzene, R–1
Visco P–25–F, R–1
Warfarin, R–15
Warfarin, Sodium Salt, R–15
XD–1603, R–2
Zinc Fluosilicate, I–8
Zinc Oxide, R–13
Zinc Phosphide, R–15
ZIP, R–12
Ziram, F–2

Insecticides, Group I–1

This group contains 23 chemicals for use on cotton, soybeans, peanuts, wheat, and tobacco.

Acephate (Orthene)—Registration Standard.[1]
Aldicarb (Temik)
Chlordimeform (Galecron, Fundal)
Chlordimeform hydrochloride (Galecron SP, Fundal SP)
Demeton (Systox)
Dicrotophos (Bidrin)—Registration Standard
Diflubenzuron (Dimilin)
Endrin—RPAR review completed
EPN—RPAR [2]
Fenvalerate (Pydrin)
Gossyplure
Grandlure Mixture
Heliothis polyhedrosis virus (Elcar)
HEX
Methomyl (Lannate, Nudrin)—Registration Standard
Methyl parathion
Monocrotophos (Azodrin)
Parathion
Permethrin (Ambush, Pounce)
Phosphamidon (Dimecron)
Profenofos (Curacron)
Sulprofos (Bolstar)
Toxaphene—RPAR

Insecticides, Group I–2

This group contains 15 chemicals for use on corn, alfalfa, and sorghum.

Bufencarb (Bux)
Carbaryl (Sevin)—pre-RPAR
Carbofuran (Furadan)
Carbophenothion (Trithion)
Chlorpyrifos (Lorsban, Dursban)
Disulfoton (Di-Syston)
Ethoprop (Mocap)
Fensulfothion (Dasanit)
Fonofos (Dyfonate)
Landrin
Methidathion (Supracide)—Registration Standard
Phorate (Thimet)
Terbufos (Counter)
Trichlorfon (Dylox)—Pre-RPAR
TEPP

Insecticides, Group I–3

This group contains 16 chemicals to be used on fruit and nut trees, excluding citrus and grapes.

Amitraz (BAAM)—RPAR review completed
Azinphos methyl (Guthion)
Chloropropylate (Acaralate)
Cyhexatin (Plictran)
Dialifor (Torak)—Registration Standard
Diazinon (Spectracide)
Dinocap (Karathane)
Endosulfan (Thiodan)—Registration Standard
2-Naphthol (Beta-naphthol)
Ovex (Chlorfenson)
Phosalone (Zolone)—Registration Standard
Phosmet (Imidan, Prolate)
Propargite (Omite)
Tetrasul (Animert)
Vendex (Hexakis)
Dormant oils

Insecticides, Group I–4

This group contains 10 chemicals for use on citrus and grapes.

Chlorobenzilate (Acaraben)—RPAR review completed
Cryolite (Kryocide)
Dicofol (Kelthane)—Registration Standard
Dimethoate (Cygon, Defend)—RPAR
Dioxathion (Delnav)
Ethion (Nialate)
Formetanate hydrochloride (Carzol SP)
Naled (Dibrom)—pre-RPAR
Summer oils
Tetradifon (Tedion)

Insecticides, Group I–5

This group contains 14 chemicals for use on vegetables.

Bacillus thuringiensis
Malathion
Methamidophos (Monitor)—Registration Standard
Methoxychlor
Mevinphos (Phosdrin)
Nicotine
Nicotine sulfate
Oxamyl (Vydate L)
Pirimicarb (Pirimor)
Rotenone—Pre-RPAR
Ryanodine (ryania)
Sabidilla
Oxydemeton-methyl (Metasystox-R)
Pirimiphos-ethyl (Primicid)

Insecticides, Group I–6

This group contains 24 chemicals for use on livestock and domestic animals.

Benzene—Pre-RPAR
Benzyl Benzoate
Bomyl
Bone oil (Dippel's Oil)
Butonate
Butoxy polypropylene glycol (Stabilene)
(Crag Fly Repellent)
Chlorfenvinphos (Supona)
Coumaphos (Co-Ral)—Registration Standard
Crotoxyphos (Ciodrin)
Crufomate (Ruelene)
Diisobutyl phenoxyethanol (Flys-Off)
Dichlorvos (DDVP)—pre-RPAR
Dimethyl phthalate (DMP)
Diphenylamine (DPA)—pre-RPAR
Famphur (Famophos)
Fenchlorphos (Ronnel)
Lindane—RPAR
Linseed Oil
Muscalure
Phenothiazine
Piperazine dihydrochloride
Proban (Cythioate, Cyflee)
Tetrachlorvinphos (Gardona, Rabon)
Tabutrex

Insecticides, Group I–7

This group contains 9 chemicals for use as insect repellents at non-agricultural sites.

Camphor
Citronella, oil of
Deet—Registration Standard
Ethyl hexanediol (Rutgers 612)—Registration Standard
Indalone
MGK Repellent eleven
MGK Repellent 326
Benzaldehyde
N–butyl Acetanilide

Insecticides, Group I–8

This group contains 25 chemicals for use as domestic bug control and in food processing plants.

Allethrin
Ammonium fluosilicate (Dri-Die)
Baygon (Propoxur)
Bendiocarb (Ficam)
Bioallethrin (D-trans allethrin)
Boric acid—Registration Standard
Para-dichlorobenzene—Pre-RPAR
Ethylene glycol ether of pinene (DHS activator)
Isothymyl chloroethyl ether
Lethane 384
Lethane 60 + Lethane A–70
MGK Repellent 874
MGK 264
Naphthalene—Registration Standard
Thanite (isobornyl thiocyanoacetate)
Mitin FF
Pyrethrins
Resmethrin
Silica Gel
Silicon dioxide
Sodium fluoride (Florocid) Ethylene
Sodium fluosilicate
Sumithrin (d-phenothrin)
Tetramethrin (Neo-pyanamin)
Zinc fluosilicate

Insecticides, Group I–9

This group contains 21 chemicals for use as fumigants and nematicides.

Aluminum phosphide (Phostoxin)—Registration Standard
Calcium cyanide (Cyanogas)
Carbon disulfied
Carbon tetrachloride—Pre-RPAR
Chloroform—RPAR

[1] These chemicals have been selected for Registration Standard Review.
[2] Now undergoing Rebuttable Presumption Against Registration (RPAR) review.

Chloropicrin—Registration Standard
Dibromochloropropane (DBCP)—RPAR review completed
Dichloropropane—Pre-RPAR
Ethyl formate
Ethylene dibromide (EDB)—RPAR
Ethylene dichloride (EDC)—Pre-RPAR
Ethylene oxide (ETO)—RPAR
Fenamiphos
Hydrogen cyanide (Cyclon)
Methyl bromide
Methylene chloride
Propylene oxide
Sulfotepp
Epichlorohydrin—Pre-RPAR
Perchloroethylene—Pre-RPAR
Metam-Sodium

Insecticides, Group I–10

This group contains 5 chemicals used for termite control.

Aldrin—Most uses cancelled
Chlordane
Dieldrin—Most uses cancelled
Heptachlor
Sulfuryl fluoride (Vikane)

Insecticides, Group I–11

This group contains 15 chemicals for use on lawns, ornamentals, and forest trees.

Aspon (o,o,o,o-tetrapropyl dithiopyrophosphate)—Registration Standard
Bacillus popillae and B-lentimorbus
Bromophos (Nexion)
Methyl eugenol
Chlorfenethol (Dimite, Qikron)
Eugenol
Dichlofenthion (Mobilawn)
Disparlure
Fenitrothion (Sumithion)
Gypchek
Mexacarbate (Zectran)
Pentac (Dienochlor)
Aminocarb (Matacil)
Nuclear polyhedrosis virus of Douglas fir tussock moth
Kinoprene (Enstar)

Insecticides, Group I–12

This group contains 6 chemicals for use as mosquito larvacides.

Copper acetoarsenite (Paris Green)—RPAR; some products cancelled
Fenthion (Baytex)
Kerosene
Methoprene (Altosid)—Registration Standard
Temephos (Abate)—Registration Standard
Dimethrin

Insecticides, Group I–13

This group contains 13 chemicals for miscellaneous uses.

DDT
Dimetilan (Snip)
Sodium pentachlorophenate
Lead arsenate, acid—RPAR
Lead arsenate, basic—RPAR
Saltpeter
Soap
Pine tar
Diamidfos
Ortho-dichlorobenzene
Methyl trithion
Mobam Sodium Arsenate—RPAR

Herbicides, Group H–1

This group contains 1 chemical with a broad spectrum of uses.

2,4-D (plus salts and esters)

Herbicides, Group H–2

This group contains 10 chemicals for use on corn.

Atrazine
Alachlor
EPTC
Dicamba
Cyanazine
Metolachlor—Registration Standard
Cyprazine
TCBC
Simazine
Butylate

Herbicides, Group H–3

This group contains 28 chemicals for use on soybeans, cotton, peanuts, and alfalfa.

Propachlor
Glyphosate isopropylamine salt
Trifluralin—RPAR
DSMA
Bifenox—Registration Standard
Metribuzin
Bentazon
Chloramben
Naptalam
Dinitramine
Nitralin
Oryzalin
Pendimethalin
Profluralin
Pronamide—RPAR review completed
Fluometuron—Registration Standard
Fluchloralin
Linuron—Registration Standard
Vernolate
EGT
Oxyfluorfen
Acifluorfen
Dichlofop methyl
Perfluidone
2,4–DB
Chlorobromuron—Registration Standard

Herbicides, Group H–4

This group contains 15 chemicals for use on sorghum, rice, and small grains.

Bromoxynil
Difenzoquat
Dipropetryn
Methazole—Pre-RPAR
Propanil
Picloram
Barban
MCPA—Registration Standard
Norflurazon
Terbutryn
Propazine
Triallate—Pre-RPAR
Butachlor
Molinate
Oxadiazon

Herbicides, Group H–5

This group contains 9 chemicals for use on citrus, tree fruits, nuts, and surgarcane.

Ametryn
Terbacil—Registration Standard
Paraquat—Pre-RPAR
Dichlobenil
Bromacil—Registration Standard
Diuron—Registration Standard
Napropamide
Asulam
Hexazinone

Herbicides, Group H–6

This group contains 12 chemicals for use on sugarbeets, beans, and peas.

Dalapon
Pyrazon
Sodium TCA
Phenmedipham
MCPB
Dinoseb
Ethofumesate
Cycloate
Pebulate
Diallate—RPAR
Propham—Pre-RPAR
Desmediphen

Herbicides, Group H–7

This group contains 16 chemicals for use on drainage ditches, rights of way, forestry, and ponds.

(AMS) Ammonium Sulfamate—Registration Standard
Acrolein
Amitrole—Pre-RPAR
Karbutilate—Registration Standard
2,4,5–T—RPAR review completed; some uses suspended
Chloroxuron—Registration Standard
Diquat
Silvex—Some uses suspended
Dichlorprop
Fosamine
Trichlopyr
MSMA—Pre-RPAR
Fenac
Monuron—Registration Standard
Tebuthiuron—Registration Standard
MAMA—Pre-RPAR

Herbicides, Group H–8

This group contains 10 chemicals for use on turf.

Butralin
Benefin
Potassium cyanate
Polychlorobicyclopentadiene
Terbutol
Siduron—Registration Standard
Bensulide
Ferrous sulfate heptahydrate
Dazomet
Mecoprop

Herbicides, Group H–9

This group contains 11 chemicals for use on vegetables and tobacco.

Nitrofen—Pre-RPAR
Endothall
Diphenamid
Norea (Herbam)—Registration Standard
DCPA—Pre-RPAR
Chlorpropham
CDEC—Registration Standard
Bisethylxanthogen
Isopropalin—Registration Standard
CDAA
Metabromuron—Registration Standard

Herbicides, Group H–10

This group contains 4 chemicals for unclassified uses.

Neburon—Registration Standard
Prometryn
Erbon—Pre-RPAR
Prometon (Pramitol)

Fungicides, Group F–1

This group contains 11 chemicals with a broad spectrum of uses.

EBDC's (6)—RPAR
Benomyl—RPAR
Captan—Pre-RPAR
Copper Compounds
Thiram—Pre-RPAR
Chlorothalonil

Fungicides, Group F–2

This group contains 15 chemicals for use on walnuts, pecans, almonds, apples, pears, peaches, cherries, plums, prunes, and grapes.

Sodium Thiosulfate
Sulfur—Registration Standard
Dodine
Karathane
Ferbam
Dithianon
2,2'-Dithiobisbenzothiazole
Ammonium Polysulfide
Glyodin
Sodium Polysulfide
Streptomycin
Folpet—Pre-RPAR
Oxythioquinox
Fentin hydroxide
Ziram

Fungicides, Group F–3

This group contains 7 chemicals for use on vegetables.

Dichlone—Registration Standard
DCNA
Anilazine
Hexachlorophene
Calcium cyanamide
Captafol
Triadimefon (Bayleton)

Fungicides, Group F–4

This group contains 3 chemicals for use on citrus.

Sec-butylamine
Thiabendazole
Biphenyl

Fungicides, Group F–5

This group contains 8 chemicals for use as seed treatments.

Hexachlorobenzene—Pre-RPAR
Trans-1,2,bis(propylsulfonyl) ethylene
Fenaminosulf
Chloroneb—Registration Standard
Chloronitropropane
Carboxin—Registration Standard
Terrazole—Registration Standard
Pentachloronitrobenzene (PCNB)—RPAR

Fungicides, Group F–6

This group contains 3 chemicals for use on post-harvest fruit and vegetables.

Isothan
Sodium Hypochlorite—Registration Standard
Sodium Dehydroacetate

Fungicides, Group F–7

This group contains 3 chemicals for use on grain storage.

Propionic Acid
Isobutyric Acid
Tridemorph

Fungicides, Group F–8

This group contains 4 chemicals for use on ornamentals.

Piperalin
Parinol
Triforine
Dichloroethyl Ether

Fungicides, Group F–9

This group contains 5 chemicals for use on turf.

Cadmium Compounds—RPAR
Nickel Sulfate
Thiophanates—RPAR
Cycloheximide—Registration Standard
Iprodione

Fungicides, Group F–10

This group contains 3 chemicals for unclassified uses.

Allyl Alcohol
Sorbic Acid
Ditalimfos

Industrial Preservatives, Group R–1

This group contains 21 chemicals for use in plastics, paints, textiles, paper, and adhesives.

Amical
Dimethoxane
Dodecyl Dimethyl Benzyl Ammonium Chloride
Fluorosalan
Monohydrate
Visco P–25–F
Nuosept 95
Vinyzene
2,4,5 Trichlorophenol—RPAR; some products cancelled
Dichlorophene
Benzalkonium Chlorine
Sodium N-Methyl-N-Oleoyltaurate
Kathon 886
Cetyl Pyridinium Bromide
Mercaptobenzothiazole
Biomet 4
Biobor
Methylene Bis (Thiocyanate)
10,10 Oxybisphenoxarsine—Registration Standard
Onyxide
2-Chlorophenol

Slimicides, Group R–2

This group contains 19 chemicals for use in pulp and paper, cooling towers, and sugar mills.

1,4-Bis (Bromoacetoxy)–2-Butene
2,6-Bis [(Dimethylamino) methyl] cyclohexanone
Bis (Trichloromethyl) Sulfone
4-Bromoacetoxymethyl-M-Dioxolane
Busan 90
Chlorinated Levulinic Acids
XD–1603
2,3-Dibromopropionaldehyde
Metasol J–26
Busan 40
Sodium Chromate
Potassium Chromate
Busan 77
Potassium Bisulfate
Sulfonated Cresol
Methyl-2-3-Dibromopropionate
Nabam
Slimitrole
2,4,6 Trichlorophenol

Industrial Microbiocides, Group R–3

This group contains 4 chemicals for use as cutting oils and oil well additives.

Grotan
NMPD
Polyethylene Polyamine N-Oleylamine Hydrochloride
Bioban 1487

Sanitizers, Group R–4

This group contains 24 chemicals for use in dairies, food processing, restaurants, and air treatment.

Potassium Bromide
Sodium Bisulfate
Sodium Bisulfite
Sodium Lauryl Sulfate
Sodium Sulfate
3,5-Dibromosalicylanilide
Sodium & Potassium Hydroxide
EDTA
Hyamine 3500
Phenol
Aliquat 21
Aluminum Hydroxy Benzene Sulfonate
Butanoic Anhydride
Carbonates: Mg, K, Am, Na
HCl
Alkyl Bis (2-Hydroxyethyl) Sodium Ammonium Acetate
Trisodium Nitrilotriacetate
TCC
Mg Silicate
BTC–E–2125
N-Laurel Diethylenetriamine
Neomycin
4',5-Dibromosalicylanicide
Methyl Salicylate (wintergreen oil)

Synergists, Group R–5

This group contains 10 chemicals used as insecticide synergists, surfactants, cheleating agents, and carriers.

N-Propyl Isome
Piperonyl Butoxide—Pre-RPAR
Sulfoxide
Tropital
Sesame Oil
Arbanol Dee
Sulfonated Vegetable Oil
Calcium Sulfate
Pentasodium Diethylenetriamine Pentaacetate
Chlorothene (1,1,1-trichloroethane)

Food Preservatives, Group R–6

This group contains 7 chemicals for use in food.

Tributyltin Chloride
Sodium Diacetate
Methyl P-Hydroxybenzoate
Acetic Acid
Proxel
Fumaric Acid
Benzoic Acid

Wood Preservation, Group R–7

This group contains 11 chemcials for industrial, commercial, and marine use.

Cobalt Naphthenate

Potassium Bifluoride
Pentachlorophenol—RPAR
Tar
Coal Tar Oils—RPAR
Arsenic Pentoxide—RPAR
Ammonium Arsenite—RPAR
Sodium Pyroarsenate—RPAR
Calcium Arsenate—RPAR
Sodium Arsenite—RPAR; some products cancelled
Creosote—RPAR

Disinfectants, Group R–8

This group contains 25 chemicals for medical, industrial, institutional, household, veterinary, poultry, and livestock uses.

Alkyl Bis (Hydroxyethyl) Methyl Ammonium Chloride
N-Alkyl-N-Ethyl Morpholinium Ethyl Sulfate
Alkyl (5-Hydroxy-4-Oxo-2(4H) Pyranyl Methyl) Dimethyl Ammonium Chloride
Alkyl Monoethanol Amide
Aluminum Powder
Calcium Hypochlorite
Chlorine-B
Ethylenediamine
Gluconic Acid
Glutaraldehyde
Glycolic Acid
Isooctyl Phenoxy Polythoxy Ethanol
Magnesium Chloride
Iodine Compounds
3,4,5-Tribromosalicylanilide—Pre-RPAR
O-Benzyl-p-Chlorophenol
4-Tert-Amylphenol
Propylene Glycol
Formaldehyde
Biomet 204
Furfural
Morpholine
Trisodium Phosphate
Chlorhexidine
Hexahydro-1, 3, 5-Tris (2-Hydroxypropyl)-S-Triazine

Water Disinfection, Group R–9

This group contains 10 chemicals for use in swimming pools, sewage effluents, and potable water.

Chlorinated Glycoluril
Sodium Bromide
Chlorine Dioxide
EPIC Liquid Algacide
Sodium Persulfate
Halazone
Chlorinated Isocyanurates
Aluminum Sulfate
Silver
Dialkyl Methyl Benzyl Ammonium Chloride

Plant Regulators, Defoliants, and Desiccants, Group R–10

This group contains 25 chemicals for all uses.

NAA-Registration Standard
NAAM
Maleic Hydrazide—RPAR
Daminozide—Pre-RPAR; Registration Standard
Ethephon
Gibberellic Acid
P-Chlorophenoxyacetic Acid
Indole-3-Butyric Acid
Phyomone
DPX 1108
Hexachloroacetone
Sulfuric Acid
Arsenic Acid—RPAR
Methyl Esters of Fatty Acids
DEF—Pre-RPAR
Ethoxyquin—Registration Standard
Fatty alcohols
Cacodylic Acid—Pre-RPAR
Merphos—Pre-RPAR
Chlorflurenol
Thidiazuron
2-(3-chlorophenoxy) Propanoic Acid
Ethylene
Ancymidol
TIBA

Preservatives, Disinfectants, Slimicides, Group R–11

This group contains 15 unclassified chemicals.

Chromic Acid
Chlorobenzene
Omadine-Sodium
Dowicil A–40
Sodium Acetate
Dowicides
Nitrapyrin
Sodium Chloride
Hexylene Glycol
Aluminum Chloride
Abietylamine
Lime
Potassium Iodate
Potassium Permanganate
Sodium Phosphates

Molluscides and Miscellaneous Vertebrate Control Agents, Group R–12

This group contains 7 chemicals for all uses.

Bayluscide
Epsom Salts
Lamprecide
Metaldehyde
Methiocarb (Mesurol)
TFM
ZIP

Bird Chemosterilants, Toxicants and Repellents, Group R–13

This group contains 11 chemicals for all uses.

4-Aminopyridine (Avitrol)—Registration Standard
Castor Oil
Copper Oxalate
Ornitrol
Paloja
Polybutene
Polyethylene
Polyisobutylene
Quinone (1,4 benzoquinone)
Starlicide
Zinc Oxide

Dog and/or Cat Repellents, Group R–14

This group contains 21 chemicals for all uses.

Allyl Isothiocyanate (mustard oil)
Amyl Acetate (banana oil)
Anethole (anise camphor)
Bitrex (benzyl diethyl 2,6-xylylcarbamoylmethyl ammonium benzoate)
Blood
Capsaicin
Citral
Citrus Oil
Cresylic Acid
Diethanolamide
Eucalyptus
Geranium Oil
Lavender Oil
Lemongrass Oil
Menthol
Methyl Nonyl Ketone
Pentanethiol
Pyridine
Thymol
Trichloroethylene—pre-RPAR
Triethanolamine Salt of Lauryl Sulfate

Rodent Toxicants, Anticoagulants,.and Predator Control, Group R–15

This group contains 23 chemicals for all uses.

Antu (Alpha-napthylthiourea)
Biomet-12 (tri-n-butytin chloride)
Chlorophacinone (Rozol)
Diphacinone (Diphacin)
Diphacinone, Sodium Salt
Fluoroacetamide (Fluorakil 100)
Fumarin (Coumafuryl)—Registration Standard
Gophacide
2-Isovaleryl-1, 3-Indandione, Calcium Salt
Phosphorus—pre-RPAR
Pival (Pivalyn)
PMP (Valone)
Prolin (warfarin + sulfaquinoxaline)
R–55 (tert-butyl dimethyltrithioperoxycarbamate)
Red Squill
Sodium Fluoroacetate (1080)–RPAR
Strychnine—RPAR
Strychnine Sulfate—RPAR
Talon (brodifacoum)
Warfarin—Registration Standard
Warfarin, Sodium Salt
Zinc Phosphide—Registration Standard
Sodium Cyanide

Interested persons may, on or before December 15, 1980, submit to the Document Control Officer (TS–793), Rm. E–447, Office of Pesticides and Toxic Substances, 401 M St., SW, Washington, DC 20460, written comments regarding this notice. Three copies of all comments should be submitted if possible, although single copies of comments will be accepted. The comments are to be identified with the document control number "[OPP–30040]". Comments received may be seen in the above office between 8:00 a.m. and 4:00 p.m., Monday through Friday, excluding holidays.

Dated: September 15, 1980.

Edwin L. Johnson,

Deputy Assistant Administrator for Pesticide Programs.

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